

# A NEW LATE SILURIAN THALLOPHYTE FROM CENTRAL VICTORIA

Tims (1978), Tims & Chambers (in press), and Douglas & Lejal-Nicol (1981) provided some insight into the flora of the Lower Plant Assemblage at Limestone Road, near Yea, in central Victoria, contained in beds of the early Palaeozoic Melbourne Trough. Three different algae from this locality were also discussed by Douglas (1981). Unlike other algae recorded from the locality and indeed unlike most fossil plant taxa which are almost invariably isolated organs of a much larger body, this new specimen apparently represents an almost complete plant. It is an addition to the *Baragwanathia* flora, at least half a dozen members of which are regarded as thallophytes; of these only *Yeaia* and *Buthotreplis divaricata* Kidson have been formally named.

Class THALLOPHYTA  
Order PHAEOPHYTA?  
Family Indeterminate

Genus *Yeaia* nov.

TYPE SPECIES: *Yeaia flexuosa* sp. nov.

DIAGNOSIS: Plant with roots or holdfast. Thallus long, flat and strap-like, repeatedly dichotomising and twisting, arising as major stem or stems 3 mm in width from contorted roots or holdfast. Stem width more or less uniform for 30-50 mm before branching, further branching at greater distance along the thallus. Maximum thallus width 8-10 mm, length at least 300 mm.

*Yeaia flexuosa* sp. nov.

Figs 1, 2

DIAGNOSIS: As for genus.

HOLOTYPE: NMVP173478.

LOCALITY: Limestone Road, Yea in excavation 10 m from southern end of western (bulldozed) side of cutting. (465088 on Yea 1:50 000 topographical Map no. 7923-1). The specimen is an orange-red impression on light brown-grey siltstone or claystone of the Lower Plant Assemblage of the Yea Formation which has been assigned a Late Silurian (Ludlow) age by Garratt (1978) and was collected in August 1981, by J. G. Douglas and M. J. Garratt.

REMARKS: The fossil represents a plant which may have reached half a metre in height, with long flexuous thallus. The twisting and involution of the thallus 5 or 6 cm above the base may have been accentuated or largely caused by movement and tumbling during deposition, although transport from growth position is envisaged as minimal because of the lack of laceration, absence of thallus damage, and the adhering substrate in the holdfast area. A portion of the thallus is indicated by an arrow in Fig. 2. The attachment area of this is obscure and it is possible that it was derived from a separate plant, but I regard this as unlikely. It is of the same order of size as the attached portion, and so intimately associated as to most likely have originated from the plant under discussion. There is no indication of conducting tissue in the thallus and unfortunately fertile organs also seem to be absent.

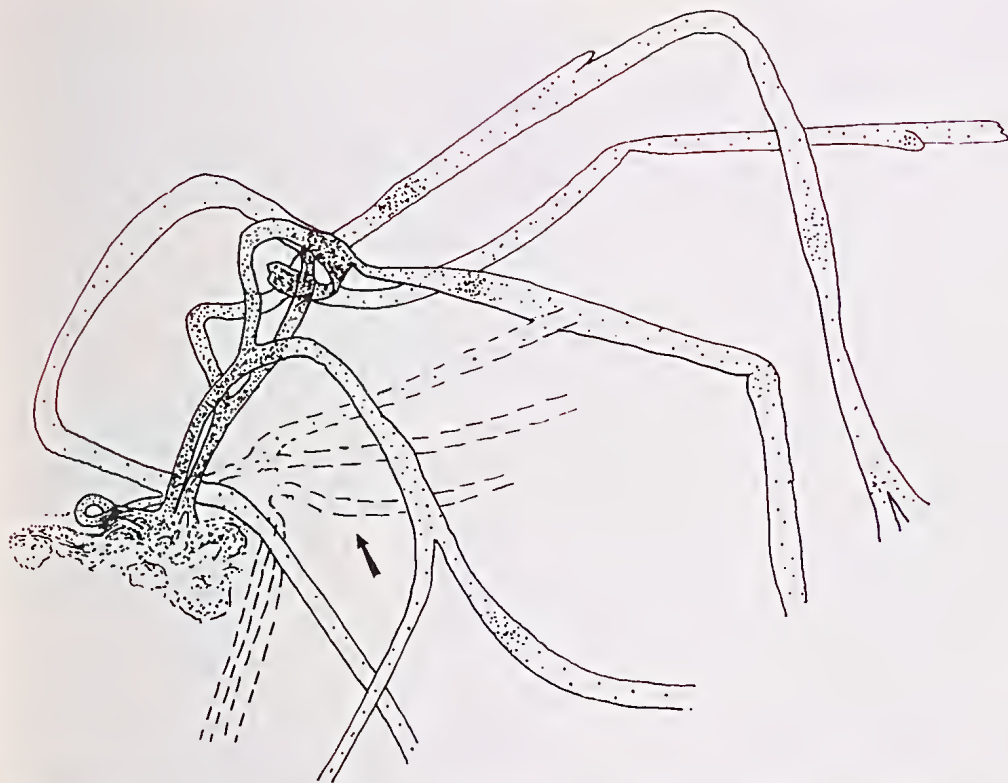


Fig. 1—*Yeaia flexuosa* sp. nov. Line drawing of counterpart of holotype showing thallus form, NMVP173478,  $\times 0.5$ .



Fig. 2—*Yeaia flexuosa* sp. nov. Holotype, NMVP173478,  $\times 1$ .



**AFFINITY:** Plant form strongly suggests affiliation with the Thallophyta and relationship to the fucoids immediately comes to mind, although algal specialists will no doubt see similarities to other present day phaeophytes and possibly to some rhodophytes.

Taggart & Parker (1976) commented that 'impressions and compressions resembling thalli of modern brown algae (Phaeophyta) are relatively common in Palaeozoic marine deposits' . . . , but I can find no record of fossils like this specimen. *Buthotrephis* species described by Lucas (1927) and others from various localities in the Melbourne Trough should be among the first to be compared. However, the *Buthotrephis* plant seems to have been much smaller and although the thallus branches dichotomously, it is much finer than *Yeaia*.

Fry and Banks (1955) described an alga (*Hungerfordia dichotoma*) with dichotomising thallus, but this was much smaller, and with swollen, not strap-like branches. These authors also remarked that 'some (Devonian) algae might show many characteristics not found in living algae,' but I still maintain the likelihood of affiliation with the phaeophytes.

**PALAEOENVIRONMENT:** The Yea Formation was laid down in the entirely marine Melbourne Trough and the well preserved condition of the specimen with substrate still adhering is, as already remarked, taken to indicate '*in situ*' or near '*in situ*' fossilisation. If this occurred in shallow water or the tidal zone this would conflict with the deep sea environment postulated by Garratt (1983).

#### ACKNOWLEDGEMENTS

I thank Dr. J. D. Tims for manuscript criticism, and Miss Christine Donohoe for the photograph. This communication is published with the permission of the Director, Geological Survey of Victoria.

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